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Is ESG Commitment Linked to Investment Performance in the Real Estate Sector?[1]

Marcelo Cajias, Franz Fuerst, Pat McAllister, Anupam Nanda

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Abstract

The linkage between corporate commitment to environmental, social and governance (ESG) issues and investment performance has generated a substantial body of research outside the real estate sector. Nevertheless, the relationship between the environmental performance and financial performance of companies is still not well understood as studies have found mixed and contradicting results. Drawing upon the KLD database which contains ratings on seven ESG dimensions from 2003-2009, this paper investigates the relationship between the ESG rating and the financial performance of a sample of US real estate firms. Since the primary transmission channel from ESG activities to financial performance may be better reflected by a firm's intangible assets, we model both Tobin's q and the total annual return in a panel framework with time and sector specific fixed effects. Our results are largely consistent with the existing literature finding a positive relationship between CFP and CSP. Further, the time scale of the lagged effects seems plausible.

Keywords: Corporate Social Responsibility, Green Buildings, Financial Performance
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[1] The authors (McAllister, Fuerst and Nanda) would like to acknowledge financial support from the Royal Institution of Chartered Surveyors (RICS) Education Trust and University of Reading, School of Real Estate and Planning, UK. All remaining errors are ours. Email contacts: marcelo.cajias@irebs.de; f.fuerst@reading.ac.uk; p.m.mcallister@reading.ac.uk; a.nanda@reading.ac.uk.

Introduction

Primarily driven by climate change and mirroring a paradigm shift in public concern, environmentally responsible and sustainable business practices have become more prominent for corporations' strategic and operational activities. For investors, the scope of responsible investment can cover not only environmental issues and climate change mitigation but also the effects of businesses on a broad range of social and ethical concerns. The paper investigates the implications of this strategic shift in the allocation of resources towards such ethical concerns for the performance of commercial real estate companies. Specifically, it aims to assess whether there is a link between the Corporate Social Responsibility (CSR) ratings of large real estate companies and their financial performance.

We have organized the paper as follows. The next section situates our research question within the existing literature. In the third section, we describe our data and present the summary statistics. Our empirical methodology is outlined in the fourth section and the results from the empirical analysis are discussed. Finally, conclusions are presented.

Related Literature

Whilst it is possible to identify the influences of ethical and moral concerns in finance, investment and business throughout history, such concerns have become increasingly salient since the 1960s. In particular, a plethora of acronyms such as ESG (Environmental, Social and Governance), CSR and SRI (Socially Responsible Investment[2]) have become increasingly mainstream in the last two decades. Despite the multi-faceted and contested nature of these labels, there is some ground common. At their core is the incorporation of non-financial issues in investment and business decision-making. In response to demand from market participants, metrics have emerged that illustrate how corporate social performance (CSP) is benchmarked. Although by no means providing perfect measures of CSP, the emergence of such metrics has facilitated a substantial body of research on the causes and effects of variations in CSP.

[2]Illustrating the growing importance placed upon environmental issues, SRI is now often used as an acronym for Sustainable and Responsible Investment.

Understanding the rationale for firms to allocate resources to CSR is clearly a relevant issue in terms of the expected effect on financial performance. Indeed, since it involves costs to firms, there has long been debate about whether firms should be allocating any resources towards CSR. Implying that resources allocated to CSR constitute a deadweight loss and a negative relationship between CSP and corporate financial performance (CFP), Milton Friedman notoriously stated that "the social responsibility of business is to increase its profits". The counter-argument has been that narrow neo-classical theories of the firm neglect the contribution of human and social capital to corporate financial performance. The contention is that CSR activities can improve firms' competitiveness by increasing demand from socially responsible consumers and by generating image and reputational benefits. The latter can, in turn, produce additional advantages linked to reductions in regulatory risk and lower costs from campaigns by social and environmental activists and non-governmental organizations (see Bagnoli and Watts, 2003, Maxwell *et al*, 2000).

In a useful taxonomy, Bansal and Roth (2000) proposed three types of motive profiles that can individually or together stimulate a higher level of CSR commitment - the caring profile, the competitive profile and the concerned profile. In the caring profile, it is the organizational leadership that is the key driver of a firm's CSR commitment. This can be characterized as a championing effort where improving the financial performance of the firm is not a primary objective. In the competitive profile, a firm is motivated by business advantage. Depending on the extent or existence of advantages, competitors may respond if improved CSR performance is perceived to create a competitive threat. Finally, the concerned profile is characterized in terms of a pre-emptive, collective response by a group of market participants in an industry that introduces improvements in CSR performance in order to obtain reputational and regulatory benefits. Both the competitive and concerned profiles imply that the primary aim of CSR activities is to improve CFP. Clearly, in reality there are likely to be mixed motives. Nevertheless, improvements in financial performance can be directly linked to rationales for allocating resources to CSR activities.

In terms of *a priori* expectations, CSR has been analyzed through a number of theoretical lenses which generate contrasting expected relationships between CSP and CFP. For instance, instrumental stakeholder theory stresses the contribution of relationships with key stakeholders

(other than shareholders) such as employees, suppliers, customers and the local community to financial performance. Closely related stakeholder–agency theory emphasizes how CSR activities can reduce the agency costs within corporate structures by improving interest alignment and monitoring of the actions of employers, managers and employees. Similarly, firm-as-contract theory also highlights the significance of, often implied, contracts with stakeholders as drivers of firms' financial performance. Hence, the expected causal relationship is that CSP should determine CFP. In contrast, slack resources theory implies the opposite relationship – that CFP determines CSP. It proposes that surpluses generated by prior financial performance release resources for CSR activities. Whilst theories are often presented as mutually exclusive, it is possible that, similar to issue of motivation, the relative importance of resource availability and the salience of relationships with stakeholders may vary between sectors or firms and/or over time.

There is a voluminous empirical literature examining whether CSP predicts CFP. Not surprisingly, it has produced an assortment of findings (for reviews see Margolis, Elfenbein and Walsh, 2007; van Beurden and Goessling, 2008; Horvathova, 2010). While a detailed review of this literature is outside the scope of this paper, it is clear that the topic is fraught with problems due to potential publication bias, differences in sampling periods and contested statistical procedures. Ruf *et al* (2001) propose that causes of the identified lack of consistency in empirical studies include weak theoretical foundations, inadequate and inconsistent measurement of CSP and CFP, weak methodology and sampling problems.

However, recent reviews suggest that the balance of the evidence is supportive of a positive relationship between CSR performance and financial performance. Van Beurden and Goessling (2008) suggest that earlier reviews included too many papers from the period 1970-90 when the issue of CSR had low socio-political prominence. Their review of studies from 1990 onwards concluded that the vast majority of studies had found a positive relationship between CSR performance and financial performance. Hence, Vogel (2005, 19) asserts that "Were Friedman now to revisit this subject, he would find much less to concern him". Studies of the relationship between CSP and CFP have identified economic sector as a significant variable (see Chand, 2006). It has been suggested that, since different industries have different exposure to social, environmental and governance issues, studies encompassing many sectors can conceal sector-

specific effects (Griffin and Mahon, 1997). Indeed, Chand (2006) suggests that research on the link between CSR performance and financial performance should focus on a single industry.

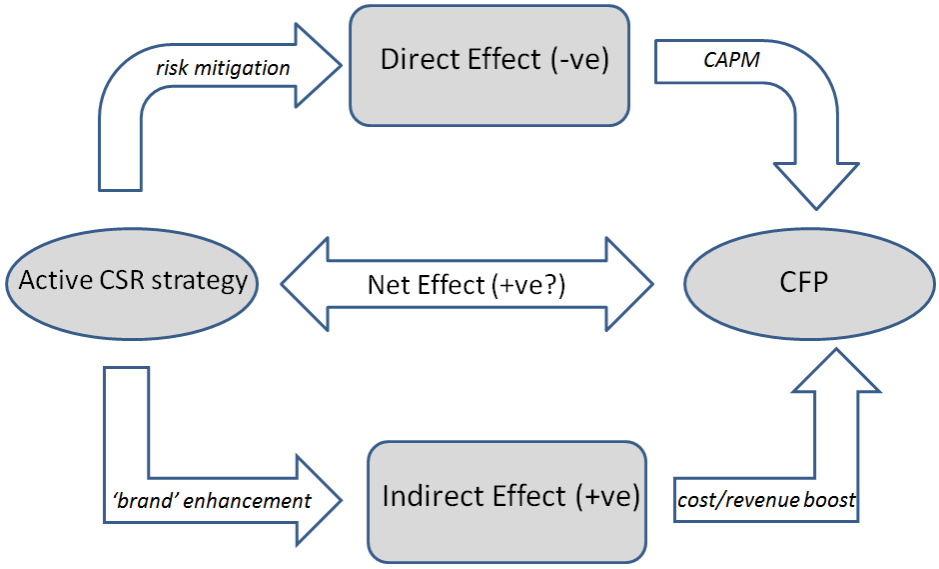
Within the real estate literature, empirical estimation of the relationship between CSP and CFP has received little attention. There is a body of essentially descriptive and/or qualitative work that has largely focussed on the investigating the increasing importance of SRI and CSR issues for real estate investors (for examples, see Newell, 2008 and 2009; Rapson, Shiers, Roberts and Keeping, 2007). Focussing largely on governance *per se*, there is a body of work looking at US REITS on the relationship between governance ratings and other agency costs with financial performance (for examples, see Bauer, Eichholtz and Kok, 2010; Bianco, Ghosh and Sirmans, 2007; Hartzell, Kallberg and Liu, 2008). The results have been mixed. Hartzell *et al* (2008) find that firms with stronger governance structures have higher initial IPO valuations and have better long-term operating performance than their peers. In contrast, Bauer *et al* (2010) find that their index of governance strength is not related to REITs' Tobin's Q nor to Return on Assets, Return on Equity and Funds from Operation. They suggest that, since the result contrasts with previous findings from studies of wider corporate performance, due to requirement to distribute at least 90% of operational earnings there are reduced agency costs for REITs and governance is, consequently a less important factor.

In terms of a theoretical framework, it is clear that a substantial proportion of empirical studies in CSR literature have found a positive relationship between CSP and CFP with varied degree of significance and strength. However, as mentioned previously and suggested by Surroca, Tribó and Waddock (2010), the empirical findings of a positive relationship between corporate social and financial performance may be spurious due to failure to identify the mediating effects of intangible resources. Surroca, Tribó and Waddock (2010) attempt to explore the missing link through which the effect (if any) may be transmitted. Their results indicate that there may be an indirect relationship that relies on the mediating effect of a firm's intangible resources.

Complementary to Surroca, Tribó and Waddock (2010) model, our hypothesis is that there could be two effects from a strong CSP – a direct effect and an indirect effect. When a firm adopts an active CSR strategy, it is expected to bolster the risk profile of the organization. If the market is efficient, the CAPM framework suggests that a decrease in risk should lead to lower return. This

is the direct effect, asserting a negative feedback on the firm's return through risk mitigation. However, as documented in the CSR literature, the benefits of a strong CSP can include: better access to socially responsible investment flows, lower cost of debt, human resource advantages and positive effects on the brand of the firm. These are the indirect effects which get transmitted through the intangible resources of the firm (Figure 1).

Figure 1: Direct and Indirect Effects of Active CSR Strategy



Further, given the conflicting expectations generated by different theoretical perspectives, an empirical analysis of the (dynamic) relationship between CSP and CFP requires some consideration of a number of potential causality issues. We need to be able to be clear that any significant positive or negative relationship identified is an effect of CSP on CFP. For instance, if there is a positive contemporaneous association between the two, it could be due to superior CSP causing improved CFP. Alternatively, superior CFP could be causing improved CSP. Another possibility is that an exogenous variable may be jointly determining improvements in CSP and CFP. A further potential complication is that elements of all these relationships may create intricate feedback and cascade effects.

Data and Summary Statistics

Similar to credit rating agencies, social and environmental rating agencies ostensibly aim to provide independent measures of corporations' CSR performance, increase transparency and reduce the search costs associated with socially responsible investment strategies. Ratings may be based on firms' past performance and/or they can also incorporate a firm's future potential relative position by evaluating their plans to improve future CSR performance (see Chatterji, Levine and Toffel, 2009). It should be acknowledged that the quality of CSR ratings have been subject to some criticisms concerning their own lack of transparency and have been subject to little robust evaluation themselves (see Chatterji *et al*, 2009). Hawken's (2004) scathing report on the SRI mutual fund sector highlighted the arbitrariness and inconsistencies in criteria used to assess firms' suitability for inclusion in responsibly invested portfolios. Porter and Kramer (2006, 91) claimed "a confusion of CSR checklists."

As stated above, this study draws upon the KLD database. KLD's social and environmental ratings are one of the most long established and have been widely used by academic researchers. Created by Kinder, Lydenberg and Domini and Co., the KLD index uses a proprietary system to assess companies on seven aspects of their CSR performance. They are community relations, corporate governance, diversity, employee relations, environment, human rights and products.. Various scales are used to assess the performance in terms of major strength, minor strength, major weakness etc. The number of indicators has varied from year to year with an upward trend. The index is constructed from a combination of publicly available sources, other data organizations, direct communication with companies themselves and government information. Typically, the annual data is available 1-2 months after the end of the calendar year.

We combine the information on sets of strength and concerns in the following index formula.

$$KLD\ Index = \left[\left(\frac{sum\ \ of\ \ strengths}{number\ \ of\ \ strengths} \times 100 \right) - \left(\frac{sum\ \ of\ \ concerns}{number\ \ of\ \ concerns} \times 100 \right) + 100 \right] \Big/ 2$$

In the above formulation, a score of 50 implies a neutral position, relative to strength and concerns; a score greater than 50 implies more 'strengths' than 'concerns'. The further the score

is from 50 (towards 100), the stronger is the relative 'strength'; a score less than 50 implies more 'concerns' than 'strengths' and farther the score is from 50 (towards 0), the stronger is the relative 'concerns'. This index formulation combines the number of strengths and concerns on a continuous scale and facilitates comparison across companies.

The source of our firm financial data is Datastream. As defined by Datastream, the real estate sector includes real estate services (brokers and real estate agents), development companies, investment companies and REITs, but excludes pure construction companies.In order to estimate our panel regression we include only complete cross sections in order to avoid attrition bias and as a result, our sample consists of mainly REITs (63.8%) but also includes a number of companies with substantial real estate holdings. This diversity of the companies in the real estate sector also needs to be acknowledged. Although all firms are exposed to the real estate sector, there are significant differences between their core business models with many involved in financial services, construction, agriculture, *inter alia*. In order to control for sector differences, we also include SIC code dummies to control for sector effects in the econometric modeling[3].

Table 1 explains the variable definitions and the specific hypotheses. Table 2a provides descriptive statistics and Table 2b the correlation matrix for the variables used in the econometric models. The time series encompasses the period 2003-2009.

Insert Tables 1 and 2

The relative index for the listed real estate companies at 48.87 is close to 50 and is also similar to the mean score for all companies in the KLD index for the sample period (49.23). Whilst there can be a wide range of scores it is clear that most of the companies tend to be 'bunched' around 50. In 2009, 26 of the 67 REITs had a score of 50. In 2009, the highest scoring REIT was RAIT Investment Trust which achieved a score of 53.75. *Prima facie*, its very poor (relative and absolute) performance in 2009 does not suggest a strong positive effect of its CSR performance in this particular case. The comparable figures for the best performing companies in the KLD index was for Intel at 67.5. The worst REIT performers were Camden Property Trust and Colonial Properties Trust who both obtained a score of 46.25. Despite their CSR score, both

[3] SIC codes obtained from Datastream, code: [WC07021:WC07028].

achieved extremely healthy returns in that year. For all firms in the KLD index, the lowest score in 2009 was 35 obtained by KBR Inc – a large military construction and engineering contractor which is a former subsidiary of Halliburton.

Empirical Framework

We apply a number of standard panel models. First, we test the influence of CSR rating on firm value by regressing Tobin's Q (measured at time *t*) on the lagged CSR score (measured at *t*, *t-1* and *t-2*). We calculate Tobin's Q following *Han (2006)* and specify the OLS model as:

(1)

where q_{ijt} is the Tobin's Q for the firm *i* in sector *j* in year *t*. K_{ijt} is the KLD index for the firm *i* in sector *j* in year *t*. X_{ijt} is the vector of financial attributes of firm *i* in sector *j* in year *t*.

The fixed effects model is:

where q_{ijt} is the Tobin's Q for the firm *i* in sector *j* in year *t*. K_{ijt} is the KLD index for the firm *i* in sector *j* in year *t*. X_{ijt} is the vector of financial attributes of firm *i* in sector *j* in year *t*. μ_i denotes a firm-specific fixed effect, ω_j is the sector-specific fixed effect and λ_t is the year-specific fixed effect.

Equations (1) and (2) have been estimated for time period 2003-2009 with 105 cross section observations. We estimate the above equations including the dummies for fixed effects for time and sectors and also as a mean-differenced model.

One important issue that may affect our results is the possibility of measurement error in KLD Indices. This could arise due to multitude of reasons – reporting errors, frequent revisions as the revised figures and facts appear in next period company statements etc. Moreover, since CSR policies and actions complement long-term corporate strategy, it may as well take several years to reflect statistically significant effects of such CSR measures. To address these issues, we take time-invariant variables to model the CFP. Specifically, variables are taken as averages over all years (2003-2009) and the structure is employed as follows:

(3)

The way we have calculated the KLD index allows us to categorize between firms with positive and negative score. It is quite reasonable to expect that firm behavior may depend on the scale of the score. A firm with a positive score may have different motivation for CSP than those from a firm with a negative score. In terms of econometrics, this entails non-linear effects of KLD variable. To address this issue, we take a piece-wise regression approach (or, spline regression with the 'knot' placed at the minimum of the residual standard error[4]) in equation (4a) below and alternatively, add non-linear terms to our estimation equation (4b) as follows.

(4a)

(4b)

In order to test our hypothesis that higher levels of CSR strengths in all areas lead in the long run to a higher firm valuation, we expect $\beta 1$ and $\beta 2$ in Equation 4a to be positive and significant. Furthermore, we expect simultaneously $\beta 1$ to be negative and $\beta 2$ positive in equation 4b in order to obtain an increasing non-linear effect on Tobin's Q.

[4] The specification of the break point is explained in APPENDIX 2.

Results and Analysis

We employ our estimation strategy with two dependent variables – Tobin's Q and Total Return. Table 3 presents the estimation with Tobin's Q as dependent variable within the framework of equations 1 and 2. We take a baseline model and add lagged terms and assume various fixed effects to control for unobserved heterogeneity specific to the company, sector and time period. This gradual development of the econometric assumptions shows the robustness and stability of the results. Column 1 presents our baseline model with only contemporaneous variables. Columns 2 and 3 add 1-period and 2-period lagged KLD variable respectively. Since we find, as theorized, a significant positive effect at 2-period lag, we take this model forward and assume sector-specific fixed effect (column 4), sector and time fixed effects (column 5), company and time fixed effects (column 6) and separate controls for strengths and concerns with sector as well as time fixed effects in column 7. We also test for joint significance of the KLD variables. The adjusted r-squared values are quite reasonable and reflect goodness of fit. We find that a significant positive effect of the two period lagged index enhances Tobin´s Q. This is consistent with the expectation that improved CSR performance produces a subsequent improvement in financial performance. It is consistent with stakeholder theories of CSR effects rather than slack resources arguments. When fixed sector and time effects are added to the model, the results remain robust. Coefficients and explanatory power tend to remain very similar across the specifications. The test for joint significance of the KLD index including the lag structure supports our inference at 5% level for concerns but is insignificant for strengths .

Insert Tables 3 and 4 here

Table 4 contains the same set of estimation results as in Table 3 with Total Return as the dependent variable and adding NAREIT return as an additional control. The first three columns present OLS results without any explicit assumptions for unobserved heterogeneity and columns 4 through 7 present models with various fixed effects. We also test for joint significance of the KLD variables. The adjusted r-squared values are quite reasonable except for company and time fixed effects. We find that no consistent result. However, there is some evidence of negative association between CSR performance and total return. Most of the individual coefficients on the KLD index score are negative and are jointly significant in a number of the model

specifications. However, when fixed sector and time effects are added to the model, the results do not remain robust. For total return, 'concerns' have no statistically significant effect on returns. In contrast, the evidence shows that the finding of a negative association is generated by 'strength'. However, the coefficients are not consistent. There is a significant positive association between KLD strengths and total return with a one year lag for real estate companies. In contrast, the coefficients for a contemporaneous KLD strengths and KLD strengths lagged two years are significantly negative at the 1% level. There is no evidence to support an association between KLD concern scores and total returns.

Table 5 is estimated within the framework of Equation 3. In these estimations, we are concerned about presence errors-in-variables and long-run realization of effects from an active CSR strategy. As before, we initially estimate the equation with and without any explicit assumptions of unobserved heterogeneity. The adjusted r-squared values reflect quite reasonable explanatory power of the model specifications. The lack of any significant association between KLD score and Tobin's Q or total return in the time invariant model is consistent with the interpretation that there is a lagging relationship between changes in CSP performance and financial performance.

Insert Tables 5 and 6 here

Table 6 presents the empirical approach outlined in Equations 4a and 4b. In these results, we are concerned with the possibility of non-linearity in impact of the CSP on Tobin´s Q. Specifically, we hypothesize that the effects may depend on the scale of the CSP. A firm with a positive score may have different motivation and impact of CSP than those from a firm with a negative score. In terms of the econometrics, this calls for incorporating non-linear terms of KLD variable.. We add quadratic terms in Columns 2, 4, 6 and 8. Note that we run these models with and without fixed effects. The adjusted r-squared values are reasonable and our empirical results show evidence of a non-linear relationship between CSR and Tobin´s Q. Both piece-wise CSR variables show positive significant values without taking time and company fixed effects into account. The coefficient of the second piece-wise variable is higher than the "normal" CSR level indicating that higher levels of responsibility create more additional firm value. The same effect is generated by analyzing the coefficients of the level CSR and quadratic CSR-Variable. The

sign and statistical significance show a increasing U-shaped effect of CSR to firm value. Nevertheless, the latter holds only for sector fixed effects.

Table 7 shows the empirical non-linear approach with total return as dependent variable. In this case the statistical significance of the piece-wise variables is not given. Nevertheless, columns 2, 6 and 7 show the U-shaped relationship of CSR to financial performance. Following the latter, only higher levels of responsibility are able to enhance significantly the financial performance. The results hold for all fixed effects specifications except for sector effects. Table 7 corroborates the hypothesis that higher levels of (present) responsibility enhance financial performance and explain (*perhaps*) the unusual result of our linear approach in Table 4. Furthermore, our control variables are constant for all fixed effects specifications which prove the stability of our model.

Conclusion

With growing interest in sustainability issues, the real estate sector has been engaging increasingly with Corporate Social Responsibility objectives. There has been a longstanding and substantial body of work on the relationship between CSP and CFP in non-real estate industries. To our knowledge, this paper provides the first empirical evidence on this issue within the real estate sector. We draw upon the methodological frameworks and the databases used in investigating these issues in non-real estate studies in our analysis. Our results are largely consistent with the existing literature finding a positive relationship between CFP and CSP.

Overall, we find that the impact of CSP on CFP works through two channels – indirect and direct effects. In general, our prior expectation of a significant link between CSP and CFP is confirmed by the empirical analysis presented in this paper but the impact differs for the direct and indirect effect. For the indirect link we find a positive association between lagged KLD score and contemporaneous Tobin's Q while we find a negative relationship between lagged KLD score and total return.

However, further work is required to draw more robust inferences. In particular, it may be important to control for differences within the REIT sector itself. To this end, we intend to augment our existing database on financial and ESG performance with information about the asset holdings of the REITs. In particular, it should be possible to add information on REITs'

exposure to eco-labeled buildings and investigate the three-way relationship between investment in LEED and Energy labeled assets, corporate financial performance and corporate social performance. The relationship between CSR rating and risk-adjusted returns will also be a useful addition to our modeling framework.

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Table 1: Variable Description & Expected Effects

Variable		Source	Expected effect TQ	Return
TobinsQ	Long term firm value measured as market capitalization plus debt (long and short) term debt and preferred stock divided by total assets.	Datastream	/	/
Stock Return	Logarithm of the Return Index	Datastream	/	/
Volatility	Stock return volatility calculated with weekly returns for the present year.	Datastream	/	/
Return on Assets	Return on assets for each year defined by DS as: Net income before preferred dividends+((interest expense on debt-interest capitalized)*(1-Tax rate)))/Average of last year´s and current year´s total assets*100.	Datastream	+	+
Total Assets	Sum of total assets for each year defined by DS as: sum of total current assets, long term receivables, investments in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.	Datastream	+/-	+/-
NAREIT Return	Total yearly return of the NAREIT index	NAREIT	/	+
DowJones Return	Total yearly return of the Dow Jones Composite 65 Stock Average index	Dow Jones	-	-
Growth in GDP	Growth on US gross Domestic product	BEA	+/-	+/-
Leverage	Ratio, calculated as short term debt and current proportion of long term debt divided by total assets	Datastream	-	-
KLD Performance	Environmental, social and governance performance index.	KLD-Database	+	+
KLD Strengths	Total score of strengths in all areas for the firm in year t.	KLD-Database	+	+
KLD Concerns	Total score of concerns in all areas for the firm in year t.	KLD-Database	-	-
KLD piece-wise	Piece-wise transformation of KLD-index in order to estimate non-linear effects. *See Appendix 2*.	KLD-Database	+	+
Net Sales	Represent gross sales and other operating revenue less discounts, returns and allowances	Datastream	+	+
Operating Income	Represents the difference between sales and total operating expenses	Datastream	+	+
Market Capitalization	Calculated as Market Price-Year End * Common Shares Outstanding	Datastream	+/-	+/-
Common Equity	Represents common shareholders' investment in a company.	Datastream	+/-	+/-

Table 2a: Summary Statistics

Variable	**N**	**Mean**	**SD**	Min.	Max.
Tobin's Q	735	1.309	0.7685	0.051	6.004
Total Return (%)	735	0.063	0.421	-2.327	1.001
KLD Index	735	48.868	3.235	35.714	64.238
KLD Index_Strength	735	3.082	5.540	0	42.553
KLD Index_Concern	735	5.346	5.270	0	28.571
Return on Assets (%)	735	5.416	6.120	-27.330	37.920
Leverage (%)	735	6.100	13.780	0	82.760
Total Assets ($mil.)	735	6`180`892.2	16`063`704.9	95`424.8	245`133`000.0
Common Equity ($mil.)	735	1`475`174.6	2`101`800.9	4`144.9	25`093`780.0
Market Cap ($mil.)	735	3`370`918.6	4`409`203.0	42`773.0	44`356`234.8
NAREIT Return (%)	7	0.078	0.279	-0.467	0.326

Table 2b: Correlation Matrix

	Total Assets	Common Equity	Return on Assets	Market Cap	Total Return	NAREIT Return	Tobin's Q	Leverage	KLD Index	KLD Index_Strength	KLD Index_Concern
Total Assets	1.000										
Common Equity	0.825	1.000									
Return on Assets	-0.086	-0.060	1.000								
Market Cap	0.649	0.784	0.086	1.000							
Total Return	0.022	0.021	0.259	0.145	1.000						
NAREIT Return	-0.030	-0.044	0.184	0.032	0.705	1.000					
Tobin's Q	-0.214	-0.176	0.493	0.037	0.237	0.161	1.000				
Leverage	0.174	0.059	-0.109	-0.003	-0.049	-0.005	-0.309	1.000			
KLD Index	0.073	0.037	0.045	0.056	0.003	0.029	-0.073	0.164	1.000		
KLD Index_Strength	0.293	0.249	0.024	0.353	-0.064	-0.054	-0.039	0.059	0.625	1.000	
KLD Index_Concern	0.219	0.217	-0.030	0.303	-0.070	-0.093	0.048	-0.139	-0.571	0.284	1.000

Table 3: Panel Regression Models
(Dependent variable: Tobin's Q)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
KLD Index (t)	0.029	0.007	0.009	0.005	-0.019	-0.017	
	(3.724)***	(0.735)	(0.768)	(0.396)	(-1.656)*	(-1.451)	
KLD Index (t-1)		0.022	-0.0149	-0.007	-0.010	-0.013	
		(2.346)*	(-2.090)*	(-0.538)	(-1.364)	(-2.122)**	
KLD Index (t-2)			0.037	0.031	0.024	0.025	
			(2.863)**	(3.059)***	(1.835)*	(1.880)*	
KLD Index_Strength (t)							-0.005
							(-0.621)
KLD Index_Strength (t-1)							-0.011
							(-1.673)*
KLD Index_Strength (t-2)							0.015
							(1.428)
KLD Index_Concern (t)							0.013
							(2.129)**
KLD Index_Concern (t-1)							-0.000
							(-0.061)
KLD Index_Concern (t-2)							-0.009
							(-1.215)
Return on Assets (%)	0.014	0.0118	0.010	0.014	0.013	0.012	0.013
	(1.066)	(1.011)	(0.920)	(3.969)***	(1.307)	(1.163)	(1.322)
Leverage	-0.023	-0.003	-0.109	-0.196	-0.182	0.025	-0.183
	(-0.089)	(-0.010)	(-0.465)	(-1.201)	(-0.718)	(0.098)	(-0.729)
Log(Total Assets)	-0.518	-0.506	-0.470	-0.419	-0.502	-0.494	-0.505
	(-4.643)***	(-5.043)***	(-5.070)***	(-11.98)***	(-5.189)***	(-5.558)***	(-5.467)***
Log(Common Equity)	-0.197	-0.166	-0.172	-0.178	-0.137	-0.200	-0.134
	(-3.973)***	(-3.274)**	(-3.352)***	(-4.539)***	(-3.569)***	(-3.919)***	(-3.705)***
Log(Market Cap)	0.706	0.668	0.629	0.573	0.549	0.590	0.546
	(6.194)***	(6.790)***	(7.001)***	(19.14)***	(7.151)***	(7.186)***	(6.644)***
Fixed Effects?	None	None	None	Sector FE	Sector and Time FE	Company and Time FE	Sector and Time FE
Joint Significance *p*-value (KLD variables)	0.000***	0.000***	0.000***	0.000***	0.039**	0.043**	0.145 (str.) 0.146 (con.)
Adj. R^2	61,67	61.84	61.51	65.61	68.15	62.22	67.81
N	735	630	525	525	525	525	525

NOTES: T-statistics (with robust standard errors following Arellano [1987] due to N>T) are reported within the parentheses. '***', '**', and '*' denote 1%, 5% and 10% significance levels respectively.

Table 4: Panel Regression Models
(Dependent variable: Total Return)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
KLD Index (t)	-0.005	-0.009	-0.005	-0.006	-0.007	-0.001	
	(-2.278)**	(-1.374)	(-0.550)	(-0.703)	(-0.701)	(-0.162)	
KLD Index (t-1)		0.003	0.012	0.010	0.012	0.013	
		(0.609)	(1.146)	(0.967)	(1.130)	(1.214)	
KLD Index (t-2)			-0.015	-0.011	-0.010	-0.011	
			(-2.030)**	(-1.523)	(-1.397)	(-1.499)	
KLD Index_Strength (t)							-0.014
							(-2.447)**
KLD Index_Strength (t-1)							0.020
							(2.997)***
KLD Index_Strength (t-2)							-0.012
							(-2.871)***
KLD Index_Concern (t)							-0.006
							(-1.019)
KLD Index_Concern (t-1)							0.004
							(0.492)
KLD Index_Concern (t-2)							-0.002
							(0.694)
Return on Assets (%)	-0.001	0.002	-0.002	-0.007	-0.005	-0.001	-0.050
	(-0.362)	(-0.851)	(-0.636)	(-2.607)***	(-1.815)*	(-0.225)	(-1.974)**
Leverage	0.237	0.326	0.406	0.452	0.474	0.407	0.469
	(2.256)**	(3.615)***	(4.356)***	(5.246)***	(5.295)***	(3.954)***	(5.351)***
Log(Total Assets)	-0.096	-0.110	-0.111	-0.158	-0.151	-0.108	-0.141
	(-3.371)***	(-3.691)***	(-3.468)***	(-5.034)***	(-4.081)***	(-3.268)***	(-3.741)***
Log(Common Equity)	-0.074	-0.078	-0.082	-0.049	-0.073	-0.096	-0.087
	(-2.584)***	(-2.481)**	(-2.082)**	(-1.184)	(-1.561)	(-2.282)**	(-1.784)*
Log(Market Cap)	0.185	0.205	0.213	0.240	0.262	0.245	0.275
	(6.605)***	(7.181)***	(6.961)***	(9.368)***	(9.184)***	(7.469)**	(8.911)***
NAREIT Return (%)	0.950	0.916	0.908	0.900	-2.664	NA	-6.573
	(20.782)***	(16.417)***	(15.274)***	(15.170)***	(-0.640)		(-2.542)**
Fixed Effects?	None	None	None	Sector FE	Sector and Time FE	Company and Time FE	Sector and Time FE
Joint Significance *p*-value (KLD variables)	0.014**	0.034*	0.041**	0.153	0.453	0.381	0.006*** (str.) 0.560 (con.)
Adj. R^2	58.54	56.56	54.95	56.81	57.46	22.70	58.09
N	735	630	525	525	525	525	525

NOTES: T-statistics (with robust standard errors following Arellano [1987] due to N>T) are reported within the parentheses. '***', '**', and '*' denote 1%, 5% and 10% significance levels respectively. NAREIT Return in column 6 not available due to time fixed effects.

Table 5: Time-Invariant Regression Models
(Dependent variables: Tobin's Q and Total Return)

	(1) TQ	(2) TQ	(3) TR	(4) TR	(5) TQ	(6) TR	(7) TQ	(8) TR
KLD Index	0.012 (0.806)		0.000 (0.030)				0.013 (0.800)	-0.002 (-0.476)
KLD Index_Strength		0.004 (0.488)		-0.001 (-0.422)	0.004 (0.364)	-0.002 (-0.791)		
KLD Index_Concern		-0.009 (-1.084)		-0.001 (-0.664)	-0.010 (-0.956)	-0.000 (0.920)		
Return on Assets (%)	0.026 (0.943)	0.027 (0.942)	0.002 (0.409)	0.002 (0.438)	0.030 (1.286)	-0.002 (-0-418)	0.029 (1.297)	-0.002 (-0.501)
Leverage	0.424 (1.199)	0.410 (1.129)	0.069 (0.729)	0.062 (0.661)	0.304 (0.893)	0.165* (1.913)	0.311 (0.909)	0.167 (1.925)*
Log(Total Assets)	-0.612 (-4.079)***	-0.606 (-3.915)***	-0.042 (-1.591)	-0.040 (-1.489)	-0.635 (-4.353)***	-0.065* (-1.897)	-0645 (-4.392)***	-0.069 (-1.955)*
Log(Common Equity)	-0.246 (-3.074)***	-0.252 (-3.075)***	-0.040 (-1.979)*	-0.043 (-2.111)**	-0.154 (-2.364)**	-0.038 (-1.706)**	-0.143 (-2.149)**	-0.034 (-1.546)
Log(Market Cap)	0.809 (5.462)***	0.816 (5.547)***	0.099 (3.476)***	0.102 (3.624)***	0.756 (5.796)***	0.121 (3.795)***	0.748 (5.976)***	0.118 (3.760)***
Fixed Effects?	None	None	None	None	Sector FE	Sector FE	Sector FE	Sector FE
Joint Significance *p*-value (KLD variables)		0.547		0.682	0.473	0.690		
Adj. R^2	72.80	72.58	20.40	20.22	78.45	23.11	78.61	23.6
N	105	105	105	105	105	105	105	105

NOTES: T-statistics (with robust standard errors following Arellano [1987] due to N>T) are reported within the parentheses. '***', '**', and '*' denote 1%, 5% and 10% significance levels respectively.

Table 6: Piece-Wise Panel Regression Models
(Dependent variable: Tobin's Q)
Non-linear effects calculated for KLD-Variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KLD Piecewise 1	0.058		0.048		0.005		0.008	
	(3.673)***		(3.804)***		(0.321)		(0.457)	
KLD Piecewise 2	0.071		0.0575		0.0105		0.015	
	(3.590)***		(3.979)***		(0.562)		(0.735)	
KLD Index		0.170		0.165		-0.207		-0.203
		(3.614)**		(4.149)***		(-0.997)		(-1.065)
KLD Index²		-0.002		-0.002		0.002		0.002
		(-3.057)***		(-3.358)***		(0.923)		(0.976)
Return on Assets (%)	0.051	0.050	0.053	0.0515	0.048	0.048	0.048	0.047
	(3.555)***	(3.607)***	(4.005)***	(4.242)***	(3.640)***	(3.590)***	(3.174)***	(3.096)***
Leverage	-0.911	-0.757	-0.769	-0.769	-0.723	-0.724	-0.706	-0.703
	(-4.248)***	(-3.188)***	(-3.298)***	(-3.095)***	(-2.920)***	(-2.877)***	(-3.072)***	(-2.975)***
Log(Total Assets)	-0.284	-0.322	-0.260	-0.326	-0.351	-0.351	-0.340	-0.340
	(-2.486)**	(-2.818)***	(-2.597)***	(-2.997)***	(-3.222)***	(3.206)***	(-3.038)***	(-2.990)***
Log(Common Equity)	0.173	0.139	0.140	0.154	0.165	0.164	0.140	0.159
	(1.857)*	(1.710)*	(1.528)	(1.671)*	(1.783)*	(1.766)*	(1.764)*	(1.737)*
Fixed Effects?	None	None	Sector FE	Sector FE	Sector and Time FE	Sector and Time FE	Company and Time FE	Company and Time FE
Joint Significance *p*-value (KLD variables)	0.000***	0.000***	0.000***	0.000***	0.002***	0.028***	0.000***	0.020**
Adj. R^2	39.35	40.80	48.92	49.82	51.94	53.25	40.44	39.52
N	735	735	735	735	735	735	735	735

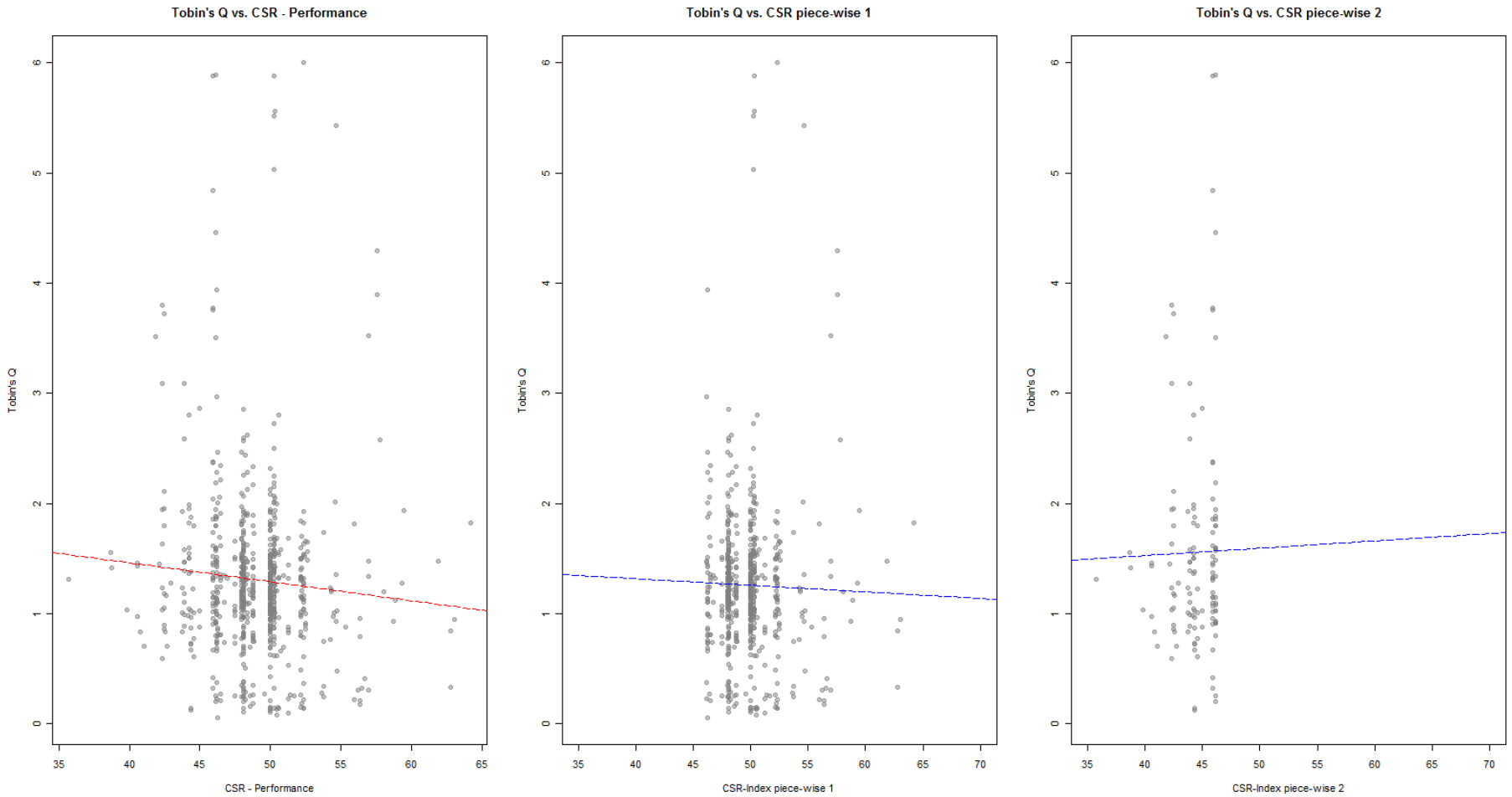
NOTES: T-statistics (with robust standard errors following Arellano [1987] due to N>T) are reported within the parentheses. '***', '**', and '*' denote 1%, 5% and 10% significance levels respectively.

Table 7: Piece-Wise Panel Regression Models
(Dependent variable: Total Return)
Non-linear effects calculated for KLD-Variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KLD Piecewise 1	-0.008 (-3.342)***		-0.008 (-3.805)***		-0.006 (-1.788)		-0.003 (-0.893)	
KLD Piecewise 2	-0.010 (-3.622)***		-0.009 (-3.816)***		-0.006 (-1.537)		-0.005 (-1.085)	
KLD Index		-0.017 (-2.481)**		0.014 (-1.766)*		0.080 (2.167)**		0.093 (2.719)***
KLD Index²		0.0001 (1.922)*		0.000 (1.025)		-0.001 (-2.302)**		-0.001 (-2.736)***
Return on Assets (%)	-0.000 (-0.090)	-0.000 (-0.067)	-0.002 (-0.850)	-0.002 (-0.848)	-0.001 (-0.579)	-0.001 (-0.582)	0.001 (0.101)	0.000 (0.127)
Leverage	0.284 (3.487)***	0.273 (3.070)***	0.336 (4.576)***	0.329 (4.150)***	0.348 (4.210)***	0.351 (4.287)***	0.289 (3.265)***	0.289 (3.246)***
Log(Total Assets)	-0.131 (-5.140)***	-0.127 (-4.740)***	-0.149 (-6.184)***	-0.147 (-5.705)***	-0.151 (-5.640)***	-0.152 (-5.675)***	-0.132 (-4.878)***	-0.132 (-4.823)***
Log(Market Cap)	0.162 (6.538)***	0.160 (6.314)***	0.179 (7.912)***	0.178 (7.678)***	0.190 (7.810)***	0.192 (7.944)***	0.173 (6.756)***	0.175 (6.812)***
Return NAREIT	0.967 (19.040)***	0.600 (19.120)***	0.959 (18.599)***	0.954 (18.742)***	0.304 (0.360)	-6.448 (-2.182)**	NA	NA
Fixed Effects?	None	None	Sector FE	Sector FE	Sector and Time FE	Sector and Time FE	Company and Time FE	Company and Time FE
Joint Significance *p*-value (KLD variables)	0.001***	0.007***	0.003***	0.013**	0.389	0.160	0.300	0.1153
Adj. R^2	57.10	56.88	57.41	57.26	57.69	57.78	16.77	16.99
N	735	735	735	735	735	735	735	735

NOTES: T-statistics (with robust standard errors following Arellano [1987] due to N>T) are reported within the parentheses. '***', '**', and '*' denote 1%, 5% and 10% significance levels respectively. NAREIT Return in column 7 and 8 not available due to time fixed effects.

Appendix 2: Non-linear Analysis of the Relationship between Tobin's Q and CSR Performance



Note: The optimal break point for the piece-wise CSR-Variables is estimated as follows: Tobin's Q is regressed against each possible CSR score to estimate the *residual standard error* (RSE). Next, the break point is assigned at the minima of the RSE which is 46.20 in this case. The graphics show the effect of the CSR variable on Tobin's Q with and without non-linear effects.